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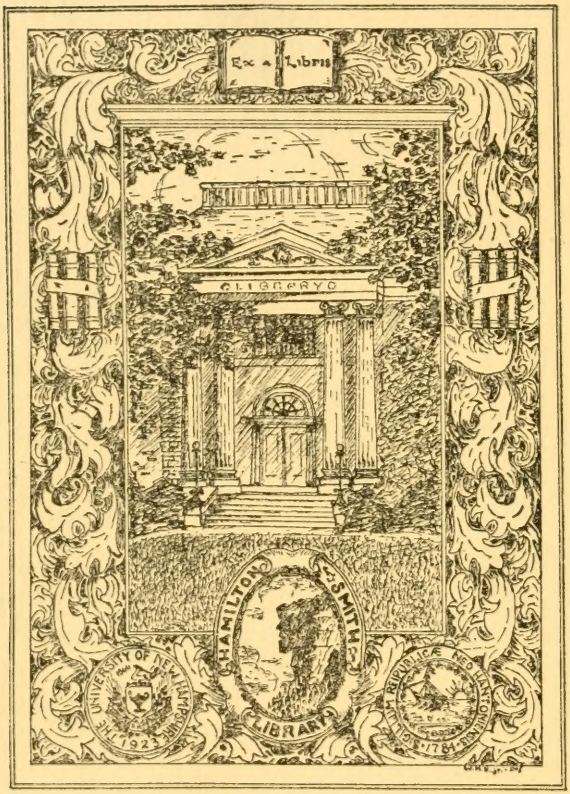

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INSPECTION OF COMMERCIAL FERTILIZERS

MADE FOR THE STATE DEPARTMENT OF AGRICULTURE

The inspection of commercial fertilizers reported in this bulletin was made under the direction of the Honorable Andrew L. Felker, Commissioner of Agriculture. The state inspector, Mr. Eugene D. Sanborn, collected samples of 109 brands of fertilizer materials which were offered for sale by dealers or had been delivered to consumers during the year ending June, 1934. The general character of the fertilizer materials collected is shown by the following classification:

Complete fertilizer	82
Nitrogen and phosphoric acid	1
Phosphoric acid and potash	1
Superphosphate (acid phosphate)	5
Nitrate of soda	1
Calnitro	1
Sulphate of ammonia	2
Ground bone	5
Tankage	1
Natural manures	10
	109

THE FERTILIZER LAW

The state official charged with the enforcement of the fertilizer law is the Commissioner of Agriculture. Copies of the law may be obtained from his office in Concord. All inquiries concerning the law and all matters relative to the registration of brands should be addressed to his office.

The purchaser's cooperation in refusing to buy a fertilizer which does not conform to the law in every respect, will not only help in the enforcement of the law but will at the same time afford himself its protection. Whether or not the purchaser familiarizes himself with the complete text of the fertilizer law, he should not accept from the dealer any bag of fertilizer which is not tagged and guaranteed in compliance with the law. The law governing these matters follows:

"Every lot or parcel of commercial fertilizer or fertilizer material sold or offered or exposed for sale within this state shall be accompanied by a plainly printed statement, clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand or trademark under which the fertilizer is sold, the name and address of the manufacturer or importer, the location of the factory, and a chemical analysis stating the minimum percentage of nitrogen, of available phosphoric acid and of water soluble potash expressed in whole numbers.

"No fertilizer or fertilizer material containing the three essential fertilizing elements, nitrogen, phosphoric acid and potash may be sold or offered for sale if the total minimum plant food nutrients contained therein is less than fourteen per cent by weight, provided however that natural animal and bird manures shall be excepted from the provisions of this section."

The chief purpose of the fertilizer law is to protect the consumer against the low grade products which would doubtless soon appear upon the market if the distribution and sale of fertilizer was not under state regulation. The value of a fertilizer depends mainly upon its content of available plant food, particularly nitrogen, phosphoric acid and potash. The presence of these constituents can only be determined by a chemical

analysis. To insure that they are being furnished by the manufacturer in the guaranteed amounts, it is necessary that each brand of fertilizer offered for sale be officially inspected and analyzed one or more times each year. When failure to meet the guarantee is proven by chemical analysis, the prosecution or seizure provisions of the law may be invoked.

In Table I are given the grades of complete fertilizers analyzed in this year's inspection, the number of brands found in each grade, the average analysis of each grade and the average retail price per ton.

TABLE I

Formula	Number of brands	Average per cent nitrogen	Average per cent total phosphoric acid	Average per cent available phosphoric acid	Average per cent water soluble potash	Average retail price per ton
2—8—10	3	2.22	8.85	8.19	11.03	$35.00
2—10—2	1	2.08	10.40	10.00	2.04	26.00
2—12—4	4	2.25	12.76	11.54	4.65	34.40
3—10—4	4	3.06	10.60	10.17	4.15	29.20
4—8—4	11	4.02	8.93	8.32	4.12	33.80
4—8—7	4	4.00	8.86	8.15	7.53	39.00
4—8—8	1	4.53	9.36	8.76	8.03	30.60
4—8—10	8	4.03	8.60	8.16	9.92	38.40
4—10—6	1	4.44	11.28	10.30	7.08	30.60
4—12—4	2	4.23	13.33	12.25	4.48	30.60
4—16—4	1	4.23	16.84	15.80	4.20	42.00
4—16—20	1	4.04	16.19	16.00	21.30	47.40
5—7.5—10	1	4.83	8.88	7.10	10.00	34.00
5—8—7	13	4.99	8.91	8.26	6.90	37.60
5—8—10	2	4.92	8.85	8.40	9.87	39.00
5—10—4	1	5.00	10.66	10.00	4.35	90.00
5—10—10	2	5.03	10.99	10.32	10.07	65.00
5—16—7	1	5.00	16.70	16.26	7.24	41.00
6—8—6	1	5.96	9.34	8.93	6.67	31.60
6—15—9	1	6.22	16.17	15.85	9.56	41.00
7—6—6	6	7.06	6.67	6.37	6.15	37.20
7—8—5	1	6.76	8.85	8.65	5.00	36.00
7—13—11	1	7.06	13.91	13.53	11.26	45.60
8—5—8	1	8.21	8.90	6.70	8.24	52.00
8—6—2	1	8.32	7.13	6.97	2.43	60.00
8—16—14	4	8.00	17.52	17.17	14.48	54.60
8—16—16	1	8.02	16.26	16.02	17.41	51.40
8—16—20	1	8.03	17.00	16.38	21.20	65.00
8—24—8	1	8.12	26.52	25.94	8.18	51.40
12—4—4	1	12.48	5.02	4.70	4.62	35.20
12—16—12	1	12.14	16.97	16.77	12.45	55.50

CONFORMITY TO GUARANTEE

The total amount of nitrogen, available phosphoric acid and potash guaranteed in the 82 complete brands averaged 21.93 per cent. The amount found by analysis was 22.59 per cent. The manufacturers, therefore, furnished on the average 0.66 per cent more than they guaranteed. The total amount furnished was less than the total amount guaranteed in 12 brands. The greatest deficiency, however, was only 0.57 per cent. The average of the other 11 deficiencies was only 0.24 per cent. No brand was found deficient in all three constituents. Seven brands were deficient in two of the three constituents, two in nitrogen and available phosphoric acid, and five in nitrogen and potash.

Twenty brands were found to contain less than the guaranteed amount of nitrogen. The greatest deficiency was 0.29 per cent. The average of the other 19 nitrogen deficiencies was 0.14 per cent.

Seven brands failed to meet the guarantee in available phosphoric acid. One brand was deficient 1.13 per cent. The average of the other six deficiencies was 0.41 per cent.

Seventeen brands contained less potash than the guarantee. The greatest deficiency was 0.59 per cent. The average of the other 16 potash deficiencies was 0.29 per cent.

In the tabulation of the analyses in the following pages deficiencies of one-fourth of one per cent or more are shown in bold-faced type. The manufacturers are arranged alphabetically. The brand name is listed alphabetically or numerically by formula under the manufacturer.

	Nitrogen		Phosphoric Acid				Potash		Total Per Cent	
			Total		Available					
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
American Agricultural Chemical Co. New York City, N. Y.										
AA Aroostook Potato Manure 5-8-7	5.00	5.02	....	8.92	8.00	8.42	7.00	**6.58**	20.00	20.02
AA Double Strength Fertilizer 8-16-14	8.00	8.29	....	18.00	16.00	17.65	14.00	15.09	38.00	41.03
AA Prolific 10% Potash Fertilizer 2-8-10	2.00	2.14	....	8.83	8.00	8.33	10.00	10.00	20.00	20.47
AA Superphosphate 16%	....	....	....	17.06	16.00	16.52	....	....	....	....
AA Top Dresser 7-6-6	7.00	7.07	....	6.74	6.00	6.30	6.00	5.85	19.00	19.22
Agrico for Aroostook with 10% Potash 5-8-10	5.00	5.00	....	8.45	8.00	8.10	10.00	10.16	23.00	23.26
Agrico for Lawns, Trees and Shrubs	7.00	7.18	....	6.54	6.00	6.38	6.00	6.25	19.00	19.81
Agrico for New England 4-8-10	4.00	4.04	....	8.45	8.00	8.01	10.00	10.15	22.00	22.20
Agrico for Potatoes and Vegetables 5-8-7	5.00	5.05	....	8.35	8.00	8.04	7.00	6.77	20.00	19.86
Bowker's All Round Fertilizer 3-10-4	3.00	3.00	....	10.60	10.00	10.09	4.00	**3.68**	17.00	16.77
Bowker's Market Garden Fertilizer 4-8-4	4.00	3.91	....	8.85	8.00	8.22	4.00	**3.46**	16.00	**15.59**
Bowker's Stockbridge Early Crop Manure 5-8-7	5.00	4.76	....	8.67	8.00	8.36	7.00	**6.62**	20.00	**19.74**
Bowker's Stockbridge Potato and Vegetable Manure 4-8-10	4.00	3.83	....	8.92	8.00	8.44	10.00	**9.41**	22.00	**21.68**
Bradley's Complete Manure with 10% Potash 4-8-10	4.00	3.83	....	8.34	8.00	7.88	10.00	10.20	22.00	21.91
Bradley's XL Fertilizer 3-10-4	3.00	3.17	....	10.13	10.00	**9.64**	4.00	4.73	17.00	17.54

	Nitrogen		Phosphoric Acid				Potash		Total Per Cent	
			Total		Available					
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
American Agricultural Chemical Co. New York City, N. Y.—*Concluded*										
Fine Ground Bone	2.47	3.01	23.00	25.05	....	12.01	....	....	....	....
Monarch Fertilizer 4-8-4	4.00	3.91	....	8.86	8.00	8.23	4.00	3.76	16.00	15.90
Pulverized Sheep and Goat Manure	1.23	1.19	1.00	1.10	....	1.03	2.00	2.40	....	....
Sulphate of Ammonia	20.56	20.93	....	....	....	....	....	....	....	....
Apothecaries Hall Co. Waterbury, Conn.										
Liberty High Grade Corn 2-12-4	2.00	2.41	....	12.65	12.00	**10.87**	4.00	5.26	18.00	18.54
Liberty High Grade Market Garden 5-8-7	5.00	5.29	....	8.76	8.00	8.22	7.00	**5.94**	20.00	**19.45**
Liberty Market Garden Special 4-8-4	4.00	3.85	....	8.72	8.00	8.14	4.00	5.04	16.00	17.03
Liberty Potato and General Crops 4-8-10	4.00	4.33	....	8.92	8.00	8.40	10.00	**9.63**	22.00	22.36
Liberty Potato and Vegetable 2-8-10	2.00	2.42	....	8.46	8.00	8.02	10.00	12.57	20.00	23.01
Liberty Special Fertilizer 4-4-0 for Lawns, Trees Flowers, Gardens, and Shrubs	4.00	4.12	10.00	13.11	4.00	9.87	....	....	....	....
Windsor High Grade Corn 2-12-4	2.00	2.40	....	12.92	12.00	**11.39**	4.00	4.42	18.00	18.21
Windsor High Grade Market Garden 5-8-7	5.00	5.19	....	9.53	8.00	8.87	7.00	7.00	20.00	21.06

ARMOUR FERTILIZER WORKS CARTERET, N. J.										
Armour's Big Crop Fertilizer 2-12-4	2.00	2.07	....	12.34	12.00	11.90	4.00	4.30	18.00	18.27
Armour's Big Crop Fertilizer 4-8-4	4.00	3.91	....	8.70	8.00	8.00	4.00	4.20	16.00	16.11
Armour's Big Crop Fertilizer 4-8-7	4.00	3.89	....	8.68	8.00	8.00	7.00	7.49	19.00	19.38
Armour's Big Crop Fertilizer 4-16-4	4.00	4.23	....	16.84	16.00	15.80	4.00	4.20	24.00	24.23
Armour's Big Crop Fertilizer 5-8-7	5.00	4.78	....	8.68	8.00	8.10	7.00	7.50	20.00	20.38
Armour's Big Crop Fertilizer 5-8-10	5.00	4.83	....	9.24	8.00	8.70	10.00	9.58	23.00	23.11
Armour's Big Crop Fertilizer 7-6-6	7.00	7.03	....	6.58	6.00	6.40	6.00	5.90	19.00	19.33
Armour's Big Crop Fertilizer 8-16-20	8.00	8.03	....	17.00	16.00	16.38	20.00	21.20	44.00	45.61
Armour's Big Crop Fertilizer 16% Superphosphate	....	....	....	18.10	16.00	16.98	....	....	....	....
Sheep and Goat Manure	1.25	1.53	1.00	0.94	....	0.88	2.00	3.16	....	....
ATMOSPHERIC NITROGEN CORPORATION HOPEWELL, VA.										
Arcadian Nitrate of Soda	16.00	16.27	....	....	....	....	....	....	....	....
JOSEPH BRECK & SONS BOSTON, MASS.										
Breck's Bone Meal Fertilizer	2.47	3.00	22.88	23.82	....	....	....	....	....	....
Breck's Ram's Head Brand Pulverized Sheep Manure	1.46	1.46	0.75	0.83	....	0.71	3.00	3.00	....	....
Breck's Special Market Garden Manure 5-10-10	5.00	5.05	....	10.59	10.00	10.07	10.00	10.37	25.00	25.49
C. E. BUELL, INC. BOSTON, MASS.										
Two-In-One Peat Poultry Manure	2.75	3.10	2.50	2.50	....	2.26	1.25	1.42	....	....

	Nitrogen		Phosphoric Acid				Potash		Total Per Cent	
			Total		Available					
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Consolidated Rendering Co. Boston, Mass.										
Corenco 3-10-4 Animal Brand	3.00	3.04	....	10.87	10.00	10.49	4.00	4.00	17.00	17.53
Corenco 4-8-4 Corn and Vegetable	4.00	4.09	....	8.44	8.00	8.19	4.00	4.00	16.00	16.28
Corenco 4-8-10 Potato Grower	4.00	4.00	....	8.48	8.00	8.17	10.00	10.29	22.00	22.46
Corenco 5-8-7 General Crop Manure	5.00	4.92	....	8.48	8.00	8.05	7.00	7.00	20.00	19.97
Corenco 7-13-11 It Cuts the Cost	7.00	7.06	....	13.91	13.00	13.53	11.00	11.26	31.00	31.85
Corenco 8-16-14 with Water Soluble Magnesium Two in One	8 00	8.00	....	17.49	16.00	17.15	14.00	14.20	38 00	39.35
Corenco Sheep Manure	1.23	1.17	0.50	1.08	....	0.98	2.00	2.17	....	....
Ground Bone	2.05	2.27	22.90	25.70	....	19.21	....	....	....	....
Ground Tankage	7.41	7.46	9.15	13.32	....	9.10	....	....	....	....
New England 8-6-2 Putting Green Special	8.00	8.32	....	7.13	6.00	6.97	2.00	2 43	16 00	17.72
Sulphate of Ammonia	20 50	20.76	....	....	....	....	....	....	....	....
Superphosphate 16%	....	....	....	17.30	16.00	17.06	....	....	....	....
Eastern States Farmers' Exchange Springfield, Mass.										
Eastern States 0-14-6 Open Formula Fertilizer	....	....	....	15.14	14.00	14.85	6.00	6.62	....	....

Eastern States 4-8-8 Open Formula Fertilizer	4.00	4.53	....	9.36	8.00	8.76	8.00	8.03	20.00	21.32
Eastern States 4-10-6 Open Formula Fertilizer	4.00	4.44	....	11.28	10.00	10.30	6.00	7.08	20.00	21.82
Eastern States 4-12-4 Open Formula Fertilizer	4.00	4.44	....	13.22	12.00	12.49	4.00	4.51	20.00	21.44
Eastern States 4-16-20 Open Formula Fertilizer	4.00	4.04	....	16.19	16.00	16.00	20.00	21.30	40.00	41.34
Eastern States 6-8-6 Open Formula Fertilizer	6.00	5.96	....	9.34	8.00	8.93	6.00	6.67	20.00	21.56
Eastern States 6-15-9 Open Formula Fertilizer	6.00	6.22	....	16.17	15.00	15.85	9.00	9.56	30.00	31.63
Eastern States 8-16-16 Open Formula Fertilizer	8.00	8.02	....	16.26	16.00	16.02	16.00	17.41	40.00	41.45
Eastern States 8-24-8 Open Formula Fertilizer	8.00	8.12	....	26.52	24.00	25.94	8.00	8.18	40.00	42.21
Eastern States 12-4-4 Open Formula Fertilizer	12.00	12.48	....	5.02	4.00	4.70	4.00	4.62	20.00	21.80
Eastern States 12-16-12 Open Formula Fertilizer	12.00	12.14	....	16.97	16.00	16.77	12.00	12.45	40.00	41.36
Eastern States Calnitro	20.50	20.55	....	....	....	....	....	....	....	....
INTERNATIONAL AGRICULTURAL CORPORATION, WOBURN, MASS.										
Bone Meal	2.47	2.56	22.00	25.17	....	....	....	....	....	....
International 4-8-4	4.00	4.05	....	8.74	8.00	8.32	4.00	3.94	16.00	16.31
International 4-8-10	4.00	4.05	....	8.67	8.00	8.00	10.00	9.53	22.00	21.58
International 5-8-7	5.00	5.00	....	8.71	8.00	8.39	7.00	7.00	20.00	20.39
International 8-16-14	8.00	7.86	....	17.24	16.00	16.86	14.00	14.00	38.00	38.72
International 16% Superphosphate	....	....	....	16.62	16.00	16.06	....	....	....	....
International Caribee 5-10-10	5.00	5.00	....	11.38	10.00	10.56	10.00	9.76	25.00	25.32
International Caribee Sheep Manure	1.02	1.16	....	1.19	0.50	1.11	2.00	2.43	....	....
LOWELL FERTILIZER CO., BOSTON, MASS.										
Lowell 4-8-4 Corn and Vegetable	4.00	4.06	....	8.94	8.00	8.71	4.00	4.00	16.00	16.77
Lowell 4-8-10 Potato Grower	4.00	4.10	....	8.42	8.00	8.16	10.00	10.00	22.00	22.26
Lowell 5-8-7 Market Garden Manure	5.00	5.07	....	8.76	8.00	8.36	7.00	6.71	20.00	20.14
Lowell 7-6-6 Top Dressing	7.00	7.01	....	6.65	6.00	6.45	6.00	6.10	19.00	19.56

	Nitrogen		Phosphoric Acid				Potash		Total Per Cent	
			Total		Available					
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
McQuesten & Lewis Co. Manchester, N. H.										
McQuesten & Lewis 5-8-7 Corn and Garden Truck	5.00	5.03	....	9.99	8.00	8.07	7.00	7.15	20.00	20.25
McQuesten & Lewis Phosphate 5-7.5-10 for Potatoes, and other Root Crops	5.00	4.83	....	8.88	7.50	7.10	10.00	10.00	22.50	21.93
Merrimack Farmers' Exchange Concord, N. H.										
Merrimack Brand 2-10-2	2.00	2.08	....	10.40	10.00	10.00	2.00	2.04	14.00	14.12
Merrimack Brand 3-10-4	3.00	3.02	....	10.79	10.00	10.47	4.00	4.17	17.00	17.66
Merrimack Brand 4-8-4	4.00	4.15	....	9.41	8.00	9.17	4.00	3.85	16.00	17.17
Merrimack Brand 4-8-10	4.00	4.02	....	8.56	8.00	8.24	10.00	10.15	22.00	22.41
Merrimack Brand 5-8-7	5.00	5.00	....	8.46	8.00	8.16	7.00	7.00	20.00	20.16
Merrimack Brand 5-16-7 Special Potato Fertilizer	5.00	5.00	....	16.70	16.00	16.26	7.00	7.24	28.00	28.50
Merrimack Brand 7-6-6 Top Dressing	7.00	7.00	....	6.59	6.00	6.37	6.00	6.00	19.00	19.37
Merrimack Brand 7-8-5 Complete Fruit	7.00	6.76	....	8.85	8.00	8.65	5.00	5.00	19.00	20.41
Merrimack Brand 8-16-14	8.00	7.84	....	17.33	16.00	17.02	14.00	14.61	38.00	39.47

PREMIER POULTRY MANURE CO. CHICAGO, ILL.										
Premier Brand Pulverized Poultry Manure	4.93	5.07	2.75	2.28	2.50	2.18	1.30	1.30	....	....
Premier Brand Pulverized Sheep Manure	1.65	1.65	1.00	3.09	0.75	2.79	2.00	2.00	....	....
Premier Brand Shredded Cattle Manure	1.65	1.70	0.85	1.03	....	0.95	2.00	2.36	....	....
ROGERS & HUBBARD CO. PORTLAND, CONN.										
H Brand 4-8-4	4.00	4.06	....	9.38	8.00	8.50	4.00	4.29	16.00	16.85
H Brand 4-8-7	4.00	4.16	....	8.84	8.00	8.48	7.00	7.79	19.00	20.43
H Brand 5-8-7	5.00	4.71	....	9.08	8.00	8.32	7.00	7.18	20.00	20.21
H Brand 7-6-6	7.00	7.09	....	6.94	6.00	6.32	6.00	6.80	19.00	20.21
Hubbard's All Soils All Crops Fertilizer 4-8-4	4.00	4.10	....	9.41	8.00	8.01	4.00	4.45	16.00	16.56
Hubbard's Corn and Grain Fertilizer 2-12-4	2.00	2.13	....	13.13	12.00	12.00	4.00	4.56	18.00	18.69
Hubbard's High Potash Fertilizer 2-8-10	2.00	2.11	....	9.25	8.00	8.22	10.00	10.53	20.00	20.86
Hubbard's Potato Fertilizer 5-8-7	5.00	5.00	....	9.42	8.00	8.05	7.00	7.29	20.00	20.34
Hubbard's Superphosphate	....	....	....	16.56	16.00	16.20	....	....	....	....
Oats and Top Dressing	8.00	8.21	....	8.90	5.00	6.70	8.00	8.24	21.00	23.15
Soluble Corn Manure	4.00	4.12	....	8.96	8.00	8.00	7.00	7.85	19.00	19.97
SAGADAHOC FERTILIZER CO. INC. BOWDOINHAM, ME.										
Sagadahoc 4-8-4 For All Around	4.00	4.10	8.00	8.78	8.00	8.00	4.00	4.33	16.00	16.43
Sagadahoc 4-8-7 For General Crops	4.00	3.82	8.00	8.97	8.00	8.13	7.00	7.00	19.00	18.95

	Nitrogen		Phosphoric Acid				Potash		Total Per Cent	
			Total		Available					
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Swift & Company Baltimore, Md.										
Bone Meal Fertilizer	2.47	2.48	23.00	25.00	....	....	....	....	....	....
Vigoro for Lawns, Gardens, Flowers, Shrubbery Trees	4.00	4.02	....	13.43	12.00	12.00	4.00	4.44	20.00	20.46
Tennessee Corporation New York, N. Y.										
Loma	5.00	5.00	....	10.66	10.00	10.00	4.00	4.35	19.00	19.35
Walker-Gordon Farms Juliustown, N. J.										
Driconure	1.00	1.95	1.00	0.92	....	0.82	1.00	1.36	....	....

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